November 12, 1969

Dr. Milton Graub
President
National Cystic Fibrosis Research Foundation
202 East 44th Street
New York, New York 10017-

Re: Incorporation of Heterologous DNA into Bacterial Genomes

Dear Dr. Graub:

I would like to request your permission to use some of the funds in the above named grant towards the purchase of an inverted microscope and a controlled atmosphere incubator. A serious part of the limitation created by the current cutbacks in government funding has been the elimination of all funding for the purchase of equipment. Meanwhile, the research of one of our postdoctoral fellows has taken him into an area where it appears necessary that we establish a medium for growing mammalian cells, rather than continuing his study with bacteria.

For some time we have been searching for an <u>in vivo</u> enzyme system capable of joining double-strand breaks in DNA. To date we have tried bacterial cells and certain animal tissues known to take up DNA with generally negative results. The most encouraging results have been with some mouse tumors maintained in tissue culture. These cultured tumors are superior to bacteria in their ability to take up foreign DNA and are more versatile than animal tissues because their growth media can be controlled and mutants can be made and selected. Because of these advantages, we have decided to concentrate our investigation on cultured tissues. For the maintenance of the cell lines of interest (and most other cell lines) a controlled atmosphere (humidified, $CO_2$) incubator is essential, and is standard equipment for tissue culture laboratories. Equally necessary is the inverted microscope, which allows the cells to be observed while they are growing without the risk of killing or contamination.

We have been able to piece together half the cost of the microscope and incubator from existing funds for a project which will share the use of the equipment, but the other half remains to be funded. Total costs are:

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|---|---|---|---|
| Inverted Microscope (Nikon) | $1260.00 | | |
| Iapco Incubator | $1600.00 | | |
| | $2860.00 | | |
| | 143.00 | 5% California sales tax | |
| Total expense | $3003.00 | + freight, or approx. | $3100.00 |
| One-half | | " | $1550.00 |

In spite of the reductions in our government awards, salaries have been protected thus far. Since we have been able to cover salaries from these other sources, I hope you would consider that the use of approximately $1550 of the money awarded for the salary of a Research Associate would instead be well and properly used for the purchase of this equipment in order that the research can proceed along this new and very promising line.

Sincerely yours,

Joshua Lederberg
Professor of Genetics